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WHOLE NUMBER 2020

Submarines and Soil Fertility

How the War Affects the Farmer's Ability to Produce Bumper Crops.

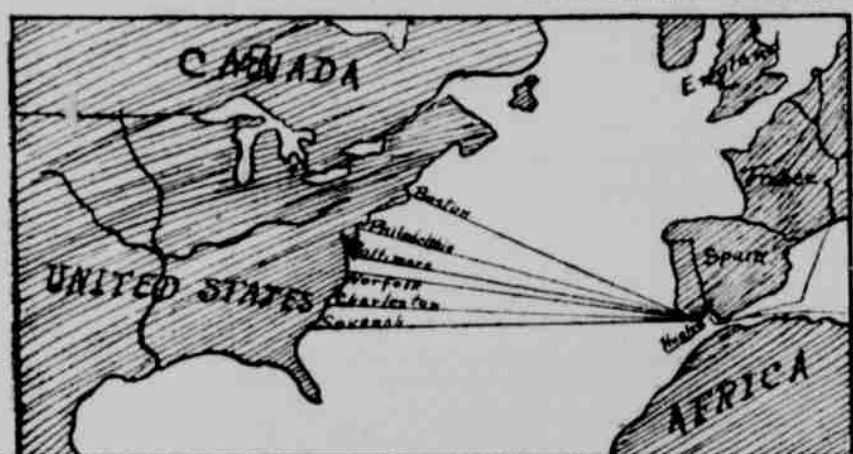
The grip of the scourge of the seas is now, after months of warfare, felt by the American farmer. When the Lusitania went down the whole world shivered with horror—horror at the very savagery of the deed, yet few of us realized at the time that within a comparatively short time the entire world would, in one way or another, be at the mercy of these newest and most savage of all implements of war. Least of all did the American farmer realize that the submarine menace would have any effect whatever on his ability to raise crops and do his bit in the line of food production.

But it has! The war itself in its earliest days cut off supplies of potash. Now the submarine warfare has reduced the supply of Spanish pyrites from which sulphuric acid is made. This sulphuric acid is used in the manufacture of acid phosphate, and also in the making of complete fertilizers. Without it raw rock phos-

phate which would usually serve as approximately 150,000 acres of corn, wheat, or of any other cereal crop. It diminishes by this much the ability of the farmer to utilize to advantage his short supply of farm labor, to grow sufficient crops, and at the same time give up to military service the boys of the farm.

Domestic Pyrites Help.

But this doesn't mean that we shall have no fertilizer. All over the country there are small domestic deposits of pyrites. These can be and are being manufactured into sulphuric acid for fertilizer use and it looks as though there will be enough. But the freight trade on these domestic pyrites is higher than that of Spanish pyrites, and the quality often lower. The cost of labor in mining is always higher, and the cost of handling greater. These facts mean inevitably an increase in the cost of acid phosphate and complete fertilizer. Fortunately,



The route followed by boats in carrying pyrites from Spain. The entrance to the Mediterranean is a favorite lurking place for submarines.

phate has but little agricultural value, and many materials now used in fertilizers could not be included.

Pyrites Carried at Low Rates.

These Spanish pyrites are usually shipped from the port of Huelva on the southwest coast of Spain, this side of the Gibraltar Gateway. Mediterranean freighters returning from Europe take on these pyrites at very low freight rates, even almost as ballast. From Huelva the pyrites are carried to Charleston, to Savannah, to Norfolk, to Baltimore, and points north. At these places the pyrites are burned, the sulphur separated and turned into sulphuric acid. Later on, ton for ton this acid is mixed with rock phosphate, and in this way the acid phosphate of commerce is produced. In other factories this acid phosphate is mixed with the blood, bone and tankage of great slaughter houses, and with other materials carrying nitrogen, for the production of the complete fertilizers on which depends the production of a sufficient supply of food crops.

Some of these Mediterranean freighters have been commandeered by the government, others have been sent down by the dreaded submarine, and still others are tied up in neutral ports all over the world.

Conditions Are Serious.

Few farmers realize the serious nature of the case. Perhaps the average boat in this trade will carry four thousand tons of pyrites. Every ton of pyrites will make in the neighborhood of four tons of acid phosphate, or up to eight tons of complete fertilizer. Every four thousand ton boat taken from the pyrites carrying trade means a loss of the acid for the fer-

however, this increase in cost is more than balanced by the increase in price which the farmer receives for his crop. Were this not the case, the American farmer and the American farm would indeed be in a bad way.

THE OVERSEAS ACRE FUND.

"The farmers of France are in far worse condition than perhaps you know. They have literally lost everything except their souls. After the last retreat of the German army, the entire countryside was devastated. No living thing remained, no birds, no animals, no trees, no crops—nothing. Wells were poisoned, all vestige of their former homes and buildings were demolished."

"Help is needed and needed quickly. Our funds will be used to buy food; clothing, farming implements, fertilizer, seeds, live stock, building materials, and other necessities as reported to us by the War Relief Clearing House. Every gift will be marked. 'Given with gratitude and good will from the farmers of America—through their Overseas Acre Fund.'" The above statement is from a pamphlet issued by the Overseas Acre Fund, which is carrying on a campaign to help the farmers of France.

Use High-Grade Fertilizers.

With fertilizers high priced and scarce this year, it is more important than ever to use high-grade rather than low-grade goods. Plant food always costs the consumer more in low-grade formulae, and now there is an added argument for high quality—less freight space is required to move a given amount of actual plant food.

Alm's M. I. A. A. Champions and Football Letter Winners

Honor Men, and Election of George Hebert as Captain, Announced at Banquet—T. A. Robinson Honored.



Letter winners—Top row, left to right: Lott, Baribeau, Burch, Miller, Spooner, Mills. Second row: Mgr. Melvin, Smith, Captain-elect Hebert, Richards, Captain Foote, Ardis, Narrance, Coach Harry Helmer.

PLANTS NEED WINTER COLD

Exposure to Low Temperature is Required to Prepare for Another Period of Growth.

The role of winter cold in plant growth has recently been described by Dr. F. V. Coville. After the period of growth in spring and summer there is a period of dormancy before cold weather sets in, and if plants are maintained artificially at a high temperature this dormant period persists. Exposure to cold is needed to activate the plant for another period of growth. Perhaps the liberation of enzymes acts on the stored starches, converting them into sugars, or the phenomenon may be due to a change in the permeability of the cell membrane.

Though normally the stimulus required for a renewal of growth is supplied by cold, mechanical injury or a period of drying may have the same effect. The process occurs independently in any exposed part of a plant, so that if one or two branches of a plant is kept continually warm while the other is subjected to the usual winter chilling, the former will not develop on the return of summer temperatures, though the latter develops as usual. It would be interesting to learn what stimulus takes the place of cold in the equatorial regions.

FREEDOM CAUSE OF INSANITY

Mental Disease Prevalent in Russia After the Revolution is Termed "Mass Psychosis."

The Russian revolution has produced a mental disease which is characterized by Prof. P. J. Rosenbach, president of the Association of Psychiatrists, as "mass psychosis." In other words, the birth of political freedom has been driving many persons insane. It is a mistake to assume that war makes sane men mad, according to Professor Rosenbach, who says that during the war he has treated between 6,000 and 7,000 insane soldiers, but that in no case did he discover that the victim's mental affliction had been caused by war horrors or privations.

During the first month of the revolution the rate of morbidity from mental disease rose to an astonishing extent. Professor Rosenbach inquired into the victims' antecedents and found, he says, that these men and women had been entirely normal and that they did not come from tainted families. He ascribes their sudden insanity to the sudden and drastic changes in Russian political, social and intellectual life. One of the symptoms of "mass psychosis," he says, is "infatuation with committees, delegations and demonstrations." Similar phenomena were observed during the French revolution after the war of 1870-71, Professor Rosenbach observes.

Russia's Platinum Production.

The production of platinum in the Ural district in Russia in 1916 is estimated by a correspondent of the London Mining Journal at only 78,674 troy ounces, against 107,774 ounces in 1915; 156,774 ounces in 1914, 173,642 ounces in 1913 and 175,381 ounces in 1912. The decrease last year extended to nearly all the districts, but was most marked on the Demidov estates and the Shavlovsk placers. The shortage of labor has been one of the causes of the decrease. The fact that all crude platinum is now requisitioned by the government has led, it is believed, to the concealment of some quantities, so that the figures given are below the real output. A considerable quantity of crude platinum is understood to be held by Russian banks, which advanced money to the producers before the metal was taken by the government.

CAPTAIN-ELECT HEBERT



Hebert, quarterback of the M. I. A. A. champions this year, was elected captain for 1918 at a meeting of the letter winners last night.

BANQUET FOR FOOTBALL CHAMPIONS.

At the college football banquet held at Wright Hall Wednesday evening Coach Harry Helmer announced the men in the group picture as the letter winners, twelve in number. This announcement followed his toast, "Material," in which he gave the men great praise for their work of the season and the efforts in each game to overcome the mistakes of the preceding contests. He also paid a glowing tribute to the Alma college men now in the service of their country, and said that in a larger way they were fighting the battles of the country as did these football men the battles of Alma college.

Lieutenant John M. McAuley, recently commissioned at Fort Sheridan, gave an interesting toast on football and the war, and said that the majority of men in the camps were athletes, and it was these men who secured commissions. In his toast, "Money Talks," Manager Linton Melvin of the champions of the M. I. A. A. made the announcement that George Hebert of Detroit, a junior in college and quarterback of the 1917 team, had been elected captain of the Maroon and Cream for 1918. The announcement was highly greeted, as Hebert is one of the most popular men in the college.

Other speakers of the evening were Chaplain Fr. John Mulvey, who came up from Camp Custer to attend the banquet; Miss Marion Cooper, F. W. Hooper, Robert Cook, former Alma grid star, back for the occasion, and Lieutenant Lester von Thurn, former college athlete, who acted in the capacity of toastmaster.

Perhaps the finest feature of the evening was the selection of a committee of honor consisting of Dr. Randall and Lieutenant von Thurn, who went to the home of J. W. Robinson and brought to the banquet as guest of honor, Thomas Arnold Robinson, former college athlete, who had returned home from France less than an hour before after six months of war service. The Alma college graduate was warmly greeted by the crowd which gathered for the banquet and was given a seat of honor at the speakers' and faculty table.

WHALERS AGAIN ARE ACTIVE

Ancient Industry Has Undergone Noteworthy Revival in America in Last Few Years.

News dispatches telling of the recent capture of three sperm whales by Grays Harbor hunters serve as a reminder that the ancient industry of whaling has undergone a noteworthy revival in the last few years. It is an interesting fact that this revival has been due largely to the development of the battleship, one of the most modern creations of man.

Hundreds of whalers from American ports sailed the seas in the times before the Civil war, when whale oil was used for lighting. The discovery of petroleum caused a slump in the industry. Historic New Bedford and Nantucket became the boneyards of a once mighty fleet, and the race of hardy American mariners developed by whaling became almost extinct. The old romances passed into tradition.

But as ships, and particularly battleships, grew in size and number it was found that for use in certain of the bearings in their ponderous engines there was nothing that would quite take the place of "case oil," found in the head of the sperm whale, which is strangely clear and does not disintegrate under great pressure and heat. So whalers began to take the sea again. They are not so primitive as those of the older generation, but their cargoes are more than ever in demand.

BARBED WIRE A WAR FACTOR

One of Peculiar Developments Is Use of American Product to Halt Armies' Progress.

The part that barbed wire has played in the war is reflected to some extent by the foreign commerce reports, says the St. Louis Globe-Democrat. This is peculiarly an American product, the Blüden invention having been first utilized on a large scale by John W. Gates at St. Louis. The descriptions from the front show the effective use made of this simple invention, which the late Senator Ingalls said was suggested by the manner in which the milk cows avoided brambles. It was woven and twisted into a barrier that seemed impenetrable until the British developed the use of artillery in such amazing fashion.

The study of fortifications has been followed from the beginning of human history, and it is a singular fact that a simple fencing device, designed for an unnumbered century, should surpass every other obstacle to the progress of a modern army.

Lighting Methods Improved.

The great development of lighting within the last ten years is made appreciable only when the results are shown in figures. It is well-known the introduction of the metal filament lamps has reduced the consumption of current for a given amount of light to one-half or one-third of what it was before, but there has been also a great improvement in the durability of the new lamp. A French authority, A. Boutaric, has investigated the records of 1,234 lamps in 26 establishments. In 1908, only half of the metal filament lamps withstood as much as 200 hours of usage, but in 1914 not less than 96 per cent endured for that length of time, and the percentage of those having a life of 1,000 hours had risen from 31.5 to 80. Besides their carbon lamps, the French were making 30,000,000 metal filament lamps yearly as the war began, the prospect being a large increase on the return of peace.

DENVER MONKEY A HUGGER

Simian Causes Sensation When He Boldly Embraces Young Woman Passing Along Street.

The lovable monkey is loose. When he swung from the low branches of a tree at Twelfth avenue and Detroit street and threw his arms about the neck of a young woman pedestrian there was a lot of commotion, says the Denver Post. Aside from breaking the spooning laws, the monkey shouldn't have chosen broad daylight. A scream from the young woman brought residents to their doors. They saw her running in one direction and the monkey in another. It was difficult for them to ascertain which was the more frightened—the young woman or the lovable monkey.

Patrolmen from the Capitol Hill station have been pursuing the lovable monkey all over the Montclair district. Where the monkey came from is a question. The zoo keeper at City park says all his monkeys are "just where they should be"; that none of them would be ungentlemanly enough to leave home and try to hug pedestrians.

Residents of the Montclair district have joined in the hunt. A tree-to-tree search is being made by the posse, including an examination of the nursery at Eighth avenue and Clayton street, where the affectionate simian was last sighted. The monkey sought temporary haven on the front porch of G. A. Clason's home, at 945 Detroit street, but when an attempt was made to capture him he curled up his tail and departed suddenly.

In addition to the frightened woman pedestrian, the monkey was seen hugging several trees. Just now he is hugging some secluded spot. Residents hope he is apprehended, as they do not want to be monkeyed with any more.

Call British Tanks "Willies."

During the summer of 1916 an enemy agent, trying to tap the wires in England might have been mystified to pick up such messages as: "Twelve Willies reach you today," or "Send tanks for six families," writes Col. E. D. Swinton in the World's Work. "Willie," a pet cognomen adopted as suitable for the telephone and obviating the use of a code for telegrams, was suggested by the fact that the first experimental "Landship" completed, though equally malevolent, was smaller and less powerful for evil than immediate successors eventually the type adopted. When the two creatures were together they gave the ludicrous impression of being child and parent of a monstrous and evil brood. Hence, naturally, "Little Willie" and "Big Willie." The "Big Willies" were also somewhat unbiologically classified as males and females, according to their armament. Incidentally, to help to conceal the destination of the tanks at the stage when any illusion as to their purpose was precluded, they were painted with the inscription, "With Care. To Petrograd," in large Russian characters.

England's Need.

Howard E. Coffin, who is standardizing the American airplane, said to a correspondent: "Standardization is the modern efficiency method. The Germans have standardized their submarine. England is a great country, a brave country, an unconquerable country, but England needs standardization."

"When an Englishman wants to say that a check is 'for deposit only' he doesn't write that on it. No, that isn't the English way. He writes 'Co.'"

"A Cambridge professor once explained to me some of the terms used at the great English university. 'He said 'full term' means three-quarters of a term. 'May week' is the first two weeks in June. 'General admission day' is the day everybody leaves. An 'ordinary degree' is one obtained by a special examination, and an 'arts inspector' is an arts student."

Long Flights of Birds.

A thrush was caught at Southport recently with a ring on its leg marked, "Inform. Witherby. High Holborn, London." Mr. H. E. Witherby, who is the editor of British Birds, has, since 1910, had 75,000 birds so marked in the hope of learning something about their travels. A swallow ringed in Lancashire was found seven months later at Grahamstown, South Africa, 6,000 miles away. A "rescuee" black-backed gull, ringed at the Farne Islands, off Northumberland, was found eight months later at St. Louis, Senegal, and a blackbird, ringed at London, was found in Moscow a few weeks afterwards. It would seem that birds are greater travelers than most of us imagine.—Exchange.

What Women Did in Civil War.

Women all over the United States formed societies and made bandages and comforts of various kinds for the soldiers, but their work, too, lacked the direction and uniformity which are necessary for prompt and effective assistance. In the Civil war, country women were especially generous in contributing time and labor to the cause of helping the sick and wounded. In many instances the men were not given enough green food, and farmers contributed potatoes and fresh vegetables in large quantities, which frequently saved a camp from scurvy and other diseases.—Farm and Fireside.

History Repeats.

"The penalties for poaching used to be very severe." "Yes. And we're drifting around to those times again. As values are going I shouldn't be surprised to see stealing a watermelon or a chicken classed as grand larceny."

CROWING OF COCKS

Rooster's Midnight Alarm May Be Haunt of Soldier?

Historical Events Are Quoted to Show Effects of Call at Regular Hours.

Is the crowing of the cock the haunt of soldiers?

Philosophers might ask themselves this question, fools might hesitate long enough with a ray of intelligence to remark: "It does look funny." The cock sounds his first shrill clarion call at twelve o'clock, midnight.

His neighboring cock from an eminent perch in an apple tree hears it and answers "auk-er-er-er-er-er." Then he sleeps again and an hour later sounds the second watch of the night. He sleeps some more. He sounds the call from the barracks and his neighbors join in to make the dawning welkin ring.

Through this Eastern section, where eastern and central time changes and the country is thickly settled, there is an hour difference in the time of the midnight crowing of the cock within a few miles' ride of the traveler.

Since the war began in Europe and the nations engaged in that conflict set the clocks back an hour for military reasons, it is said that the cock has adjusted his midnight crowing to suit the hour by the clock.

Beginning two weeks before Christmas the cock crows first at ten o'clock at night and then at the regular hours as before until after Christmas eve.

When the Roman empire claimed its outposts as the outposts of civilization, and its legions as legions, the watches of the night were sounded by the bugle of the sentinel from his tower stationed wherever the mighty conqueror had laid claim to dominion. It was then that the crowing of the cock seems to have become connected with the soldier's call of the watches of the night. "The cock shall not thrice crow this night before you shall deny me." It is mentioned in the Bible to denote the watches of the night.

The Christmas festivities in the early days of Christianity lasted several days, beginning prior to Christmas day and the revelries of the night, in which wines flowed freely, doubtless led to a curfew call which descended to the cock as the other watch calls of the soldier's bugle.

In the present world war when the haunt of the soldier is again worldwide, it is not unlikely that it might exert an influence on the life of the domestic animal. The horse. It is claimed by scientists, can scent the battle from afar and his nature even feels the approach of war.

Even again the time of the universal crowing of the cock might be changed by the effect of the military change of the people of the day.

Cyclist Messengers Satisfactory.

One of the difficulties that has been experienced by infantry following up a retreat, has been the quick transmission of reports and the maintenance of touch with their flanking column, writes a war correspondent. In cyclist training no little time is devoted to perfecting the system of communication, and experience has proved that cyclist messengers are both a speedier and more reliable means of communication than either telephones, which have to be laid, or visual signaling.

Prior to 1914, there were many who asserted that cyclist messengers were vulnerable to be of use. They were wrong, even though the character of the war in the West has not been peculiarly favorable to cyclist operations, and that cyclist battalions are and will continue to be one of the most important and valuable arms of the service.

35,000,000 Documents in One Room.

One of the most marvelous organizations in the world is found in the new buildings at Kew of the claims and record department of the ministry of labor. Here the whole work of unemployment insurance, formerly administered from various towns throughout the United Kingdom, is directed. In one room alone 35,000,000 documents relating to workmen's documents are housed, and even in this labyrinth it is possible to trace the name and full particulars of any claim in two or three minutes. The efficient working of an intricate and complicated system is carried out almost entirely by a staff of women numbering over 600.

Suggests Decoy Soldier.

We have heard of tin soldiers, but it has remained for J. Burgess, an officer in training at Fort Sheridan, Ill., to bring to our attention a camouflage soldier of paper mache. His plan is to place a large number of these dummy soldiers beside the regular troops on the firing line, to serve as decoys for the Germans. Unable to distinguish between the real and faked soldier, he believes the Germans will waste a great amount of ammunition on the papier mache figures. In this instance every hit will be as good as a miss.—Popular Science Monthly.

Occupation.

"I failed to reach you by telephone either at your office or at your home. Don't you work any more?"

"Of course, I work," protested Mr. Chingdis.

"Whereabouts?" "On a street corner or in the middle of a country road—any old place the silver happens to quit on me."

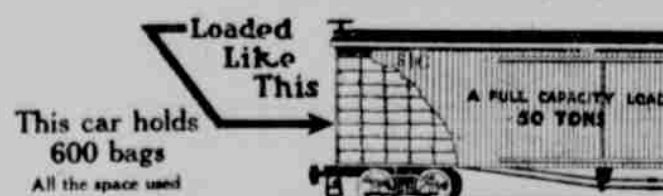
Help The Railroads.

When you order fertilizer and other spring supplies late, your agent or dealer orders out a minimum car:



He can't afford to wait for other orders; shipments caught in the rush of the season may be delayed too long. Fertilizer must be delivered before planting time.

When you order early, it gives your dealer or agent a chance to combine orders. He orders out his fertilizers in full capacity cars.



This means—not more business for him, but better service to you. The car shortage is relieved. One full car does the work of three minimum cars. The other cars can be used for hauling farm supplies—which helps you; for the carriage of food—which helps producers and consumers alike; and for transporting munitions and war supplies—which helps the Nation.

The railroads have a doubled importance in times of war. They are a vital part of our system of national defense. They deserve our full co-operation so they may give their best service to us and to our Nation.

ORDER CARS LOADED TO CAPACITY